

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (original) In an internal combustion engine coupled to an exhaust system having a catalyst, a method of adjusting an oxidant storage capacity of the catalyst, comprising:

estimating a current amount of oxidants stored in the catalyst;

estimating an amount of oxidant storage available in the catalyst;

comparing said estimated amount of oxidants stored in the catalyst to said estimated amount of oxidant storage available;

adjusting an engine operating parameter in response to said comparison to affect a temperature of the catalyst.

2. (original) The method of claim 1, wherein said engine operating parameter is indicative of engine spark.

3. (original) The method of claim 2, wherein said parameter indicative of engine spark is adjusted based on a temperature of an exhaust flange.

4. (original) The method of claim 2, further comprising the step of adjusting engine air mass in response to said adjusted parameter indicative of engine spark.

5. (original) The method of claim 4, wherein said engine air mass is adjusted based on a parameter indicative of a minimum spark required for best torque.

6-7. (cancelled)

8. (currently amended) In an internal combustion engine coupled to an exhaust system having a catalyst, a method of adjusting an engine air/fuel ratio, comprising:
estimating an actual amount of oxidants stored in the catalyst;
comparing said actual oxidant amount to a target amount of stored oxidants;
adjusting an amount of fuel provided to the engine based on said comparison;
adjusting an oxidant storage capacity of the catalyst based on said estimate of the amount of oxidants stored in the catalyst, wherein said step of adjusting an oxidant storage capacity of the catalyst further comprises the step of estimating an available oxidant storage capacity;
comparing said estimate of the actual amount of oxidants stored in the catalyst to said estimated available oxidant storage capacity; and

~~The method of claim 7, further comprising the step of adjusting an engine operating parameter in response to said comparison of said estimate of the actual amount of oxidants stored in the catalyst to said estimated available oxidant storage capacity to affect a temperature of the catalyst.~~

9. (original) The method of claim 8, wherein said engine operating parameter is indicative of engine spark.

10. (original) The method of claim 9, wherein said parameter indicative of engine spark is adjusted based on a temperature of an exhaust flange.

11. (original) The method of claim 9, further comprising the step of adjusting engine air mass in response to said adjusted parameter indicative of engine spark.

12. (original) The method of claim 11, wherein said engine air mass is adjusted based on a parameter indicative of a minimum spark required for best torque.

13. (currently amended). A system for adjusting an air/fuel ratio in the cylinders of an internal combustion engine coupled to an exhaust system, comprising:

a catalyst positioned in the exhaust stream; and
a controller for estimating an actual amount of oxidants stored in said catalyst, comparing said actual oxidant amount to a target amount of oxidants stored in the catalyst, adjusting an amount of fuel provided to the cylinders based on said comparison, and adjusting an engine operating parameter in response to said comparison to affect a temperature of the catalyst and thereby adjust an oxidant storage capacity of the catalyst ~~based on said estimate of the actual amount of oxidants stored in the catalyst.~~

14. (original) The system of claim 13, wherein said controller adjusts a parameter indicative of engine spark in response to a comparison between said estimate of the actual amount of oxidants stored in the catalyst and an estimate of an available oxidant storage capacity.

15. (new) The system of claim 13, wherein said controller adjusts engine air amount in response to said comparison.

16. (new) In an internal combustion engine coupled to an exhaust system having a catalyst, a method of adjusting an oxidant storage capacity of the catalyst, comprising:

adjusting a fuel injection amount in response to maintain an desired amount of oxidants actually stored in the catalyst relative to the oxidant storage capacity of the catalyst and thereby providing an available oxidant storage; and

adjusting an engine operating parameter other than said fuel injection in response to said available oxidant storage to affect a temperature of the catalyst and thereby adjust the oxidant storage capacity of the catalyst.

17. (new) The method of claim 16, wherein said engine operating parameter includes spark angle.

18. (new) The method of claim 16, wherein said engine operating parameter includes engine air mass.

19. (new) In an internal combustion engine coupled to an exhaust system having a catalyst, a method of adjusting an oxidant storage capacity of the catalyst, comprising:

estimating a current amount of oxidants stored in the catalyst;

estimating an amount of oxidant storage available in the catalyst;

comparing said estimated amount of oxidants stored in the catalyst to said estimated amount of oxidant storage available;

adjusting a fuel injection amount in response to said comparison; and

adjusting an engine operating parameter in response to said comparison to affect a temperature of the catalyst and thereby adjust the oxidant storage capacity of the catalyst.

20. (new) The method of claim 19, wherein said engine operating parameter includes engine air mass.